Annex 19.

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## Haigh Irrigation Proposals for Iraq

In April, 1945, the Iraqi Government asked the British Government to recruit a British Irrigation Development Commission "to undertake a comprehensive study of irrigation conditions and water storage, opening of main and subsidiary canals, the establishment of irrigation systems and means of warding off flood drainage, and to submit a detailed report... on the policy they recommended for adoption by the Government for the solution of these problems."

In February, 1946, Mr. F.F.Haigh, an irrigation engineer with long experience in India, arrived in Iraq as head of this Commission.

Mr. Haigh has submitted to the Iraqi Government a preliminary plan of his objectives. The principal features of these proposals are as follows:

### The Tigris:

The heart of Mr. Haigh's scheme is the development of the Wadi Tharthar Depression (which lies above Baghdad between the Tigris and the Euphrates) into a storage reservoir. This work would involve the construction of:

(a) a barrage on the Tigris at Samarra,
(b) an inlet from the Tigris to the Depression,
(c) outlets from the Depression to both rivers, and
(d) restoration of three old offtake canals at the Samarra barrage.

The initial development of these works at a cost of about £ 10,000,000, (approximately $40,000,000), would provide for the irrigation of some 2,100,000 acres. It is estimated, however, that sufficient Tigris water should be available and could be stored in the Depression when fully developed, to irrigate an additional 4,650,000 acres in the lower reaches of the rivers, assuming that the present rice areas are converted to normal cropping. The cost of the additional works necessary to secure this result would be about £ 5,000,000 (approximately $20,000,000). These works would reduce the Tigris to a level sufficient to avoid floods throughout its length.

Mr. Haigh recommended that the Wadi Tharthar scheme be supplemented by the construction of a dam at Bekhme on the greater Zab (one of the three main tributaries of the Tigris), to insure that sufficient water is available at Samarra to feed the canals which will offtake from Samarra when they are fully developed. The estimated cost of this project is £ 3,000,000 (approximately $12,000,000).

### Tributaries of the Tigris

Proposed works on the Adhaim would provide for irrigation, and

DEPARTMENT OF STATE A/CDC/MR
REVIEWED BY VWOLF JR DATE 5/25/82
RDS-1 XGDS-1 EXT DATE
TS AUTH. REASON(S)
ENDORSE EXISTING MARKINGS Yes
DECLASSIFIED ☒ RELEASABLE ☒
RELEASE DENIED ☐
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works on the Diala would be for the purpose of controlling flood waters. The estimated cost is £ 8,300,000 (roughly $33,200,000).

Euphrates

Mr. Haigh recommends that the existing flood control works at the Habbaniya Lake above Ramadi should be expanded by:

(a) the construction of a barrage at Warrar to increase storage capacity;
(b) improving the inlet to the lake, and
(c) constructing outlets in order that the water stored can be used for irrigation as is not possible at present.

Mr. Haigh estimates the cost of these projects to be about £ 2,940,000 (or $11,760,000).

Drainage and Desalination.

The Commission also proposes to investigate the problems connected with the drainage of water-logged lands and the desalting of the large areas near the rivers whose productivity has been reduced by salination.

Possible Results.

If the Haigh Plan is confirmed by the investigations which the British Irrigation Commission in Iraq will carry out in the course of the next twelve months, the Haigh Plan is, in the words of the Foreign Office, "likely in due course to revolutionize Iraq's economy." At an expenditure of about £ 30,000,000 ($120,000,000, or approximately double the current Iraqi budget), Iraq will gain:

(a) complete security from flood damage with consequent economy in the cost of all future river works such as flood embankments, road and railway bridges and irrigation barrages;

(b) the drainage of swamps and irrigation of desert land which will increase the area of irrigated cultivation from its present figure of about 5 million acres to about 15 million acres. (The total area in Iraq estimated to be suitable for irrigated cultivation is about 22 million acres.)

The Foreign Office summarizes the implications of the Haigh project in the following words:

"The present population of Iraq is only 4½ millions, and is barely sufficient to maintain the area already cultivated. (This situation may

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be contrasted with that of Egypt, where 17 million people are now living off 6 million acres of irrigated land.) The development of irrigation in Iraq will therefore involve either the importation of additional population from neighbouring over-populated countries such as Egypt and Palestine, or the introduction of mechanisation on a large scale.

"Great scope will be offered both for the increase of the area of existing cereal crops (Iraq might indeed become the wheat granary of the Middle East), and for the introduction of alternative cash crops such as oilseeds, cotton, sugar cane and fruit on a large scale. Large scale stock-rearing could also be introduced."